FIT ZONE I CONTRACT
CONTRACT NO. 68-01-7346
TECHNICAL DIRECTIVE DOCUMENT (TDD)

1.A. COST CENTER: Region 3

1.B. ACCOUNT NO.: S575PAMZSIW

2. NO.: F3-8802-21 ORIGIN (Red)

2.A.: ☒ NEW ASSIGNMENT ☐ AMENDMENT

3.A. PRIORITY:
☐ HIGH ☒ MEDIUM ☐ LOW

4.A. ESTIMATE OF TECHNICAL HOURS: 80

5.A. SSID NO.: XXX

5.B. EPA SITE NAME: PA-335 ITT Grinnell

5.C. CITY/COUNTY/STATE: Columbia, Lancaster County, PA

6. DESIRED REPORT FORM
☒ FORMAL REPORT ☐ FORMAL BRIEFING
☐ LETTER REPORT ☐ OTHER (SPECIFY):

3.B. KEY EPA CONTACT:
NAME: J. McCreary
PHONE: 597-1105

4.B. ESTIMATE OF SUBCONTRACT COST: N/A

7.A. START DATE: 3/14/88 field work

7.B. ESTIMATED COMPLETION DATE: 5/13/88 final

8. TYPE OF ACTIVITY:
☐ PA ☒ SI ☐ ESI ☐ HRS SUPPORT ☐ QA SUPPORT ☐ SPECIAL STUDIES
☐ ENFORCEMENT SUPPORT ☐ TRAINING ☐ EQUIPMENT MAINTENANCE
☐ GENERAL TECHNICAL ASSISTANCE ☐ PROGRAM MANAGEMENT

9. GENERAL TASK DESCRIPTION:
Conduct a site recon and develop a sampling plan of the subject site.

10. SPECIFIC ELEMENTS:
1) Review background information
2) Contact state and local agencies for relevant information
3) Arrange for site access
4) Conduct an on- and off-site inspection to identify potential sample locations (i.e., on-site samples, monitoring wells, home wells, etc.)
5) Prepare and submit recon report including proposed sampling plan and rationale, if applicable.

☐ ADDITIONAL SCOPE ATTACHED

11. INTERIM DEADLINES:

12. COMMENTS:
State Code 042 County Code 071

13. AUTHORIZING:
☐ RPO ☐ DPO ☐ PO
(SIGNATURE)

14. DATE:

15. RECEIVED BY:
☐ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS (ATTACH)
☐ REJECTED
(CONTRACTOR FITOM SIGNATURE)

16. DATE:

SHEET 1 WHITE-FITOM COPY
SHEET 2 GREEN-PROJECT OFFICER'S COPY (WASHINGTON D.C.)
SHEET 3 CANARY-RPO COPY
SHEET 4 PINK-ZPM COPY
SHEET 5 GOLDENROD-CONTRACTING OFFICER'S COPY (WASHINGTON D C)

File

ORIGINAL (Red)

1. COST CENTER	TECHNICAL DIRECTION DOCUMENT (TDD) UNCONTROLLED HAZARDOUS WASTE SITE PROJECT ecology and environment, inc.	2. No. F3-8207-31
CP 152-13		

3. Priority:	4. Authorized Overtime	5. EPA Site Identification Number	6. Completion Date:	7. Reference Info:
☐ High ☐ Medium ☒ Low	☐ Yes ☒ No	PA-335	inspect 9/82 report due 12/31/82	☒ Yes ☐ No ☐ Attached ☒ Pick Up

8. General Task Description: Conduct a Site Inspection at Grinnoll.

9. Specific Elements:	10. Interim Deadlines
1. Time to do on-site inspection.	9/82
2. Briefing plans should be developed and signed by EPA/State Project Officer for PA--Ed Shoener. If the person is unavailable, contact DPO for approval.	
3. Notify each state one week prior to inspection date (if possible) of date of inspection and ask if they would like to attend.	
4. Samples to be appropriate lab; follow proper chain of custody.	
5. Submit Site Inspection report as stated in 1/6/82 SOW.	12/31/82

11. Desired Report Form: Formal Report ☒ Letter Report ☐ Formal Briefing ☐

Other (Specify): 6. Sample results receipt should be tracked and maintained.

12. COMMENTS: 7. Sample groundwater, surface water, air and relevant on and off-site samples to characterize waste and migration.

13. Authorizing DPO:	14. Date:
(Signature)	

15. Received By: ☐ Accepted ☐ Accepted with exceptions ☐ Rejected	16. Date:
(FITL Signature)	

Exceptions Comments From (15)

Sheet 1 White -- FITL Copy
Sheet 2 Canary -- DPO Copy
Sheet 3 Pink -- Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod -- Project Officer's Copy (Washington, D. C.)
☐ Photocopy to E & E NFIM (Washington, D. C.)

F3-8207-31-01

file

1. COST CENTER	ACKNOWLEDGMENT OF COMPLETION FOR TDD	2.
EP 152-13	☒ Complete ☐ Interim UNCONTROLLED HAZARDOUS WASTE SITE PROJECT **ecology and environment, inc.**	No. F3-8207-31

ORIGINAL (Red)

3A. RESPONSE:

Site Inspection/Sampling
Grinnell
PA-335

☐ FORMAL REPORT
☐ LETTER REPORT
☐ FORMAL BRIEFING
☒ OTHER (SPECIFY) : Cancel per LYBoornazian on 8 October 1982. No CPE necessary.

3B. TECHNICAL LABOR HOURS EXPENDED 0 hours

4. DPO ACTION ☐ Accepted ☐ Accepted with exceptions ☐ Rejected

5. COMMENTS:

(Authorizing DPO Signature)

Sheet 1 White — FITL Copy
Sheet 2 Canary — DPO Copy
Sheet 3 Pink — Contracting Officer's Copy (Washington, D.C.)
Sheet 4 Goldenrod — Project Officer's Copy (Washington, D.C.)
☐ Photocopy to E & E NPM (Washington, D. C.)

F3-8207-31-02

ORIGINAL
(Red)

R-585-4-8-38

NON-SAMPLING SITE RECONNAISSANCE SUMMARY REPORT
ITT GRINNELL
PREPARED UNDER

TDD NO. F3-8802-21
EPA NO. PA-335
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

APRIL 26, 1988

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
Ruth Forman	Monica Connolly	Thomas W. Fromm
RUTH FORMAN	MONICA CONNOLLY	THOMAS FROMM
CHEMIST	ENVIRON. SCIENTIST	ASSISTANT MANAGER

ORIGINAL
(Red)

Scope of Work

NUS FIT 3 was tasked to conduct a non-sampling site reconnaissance of the ITT Grinnell site, located in Columbia, Lancaster County, Pennsylvania.

Background Information

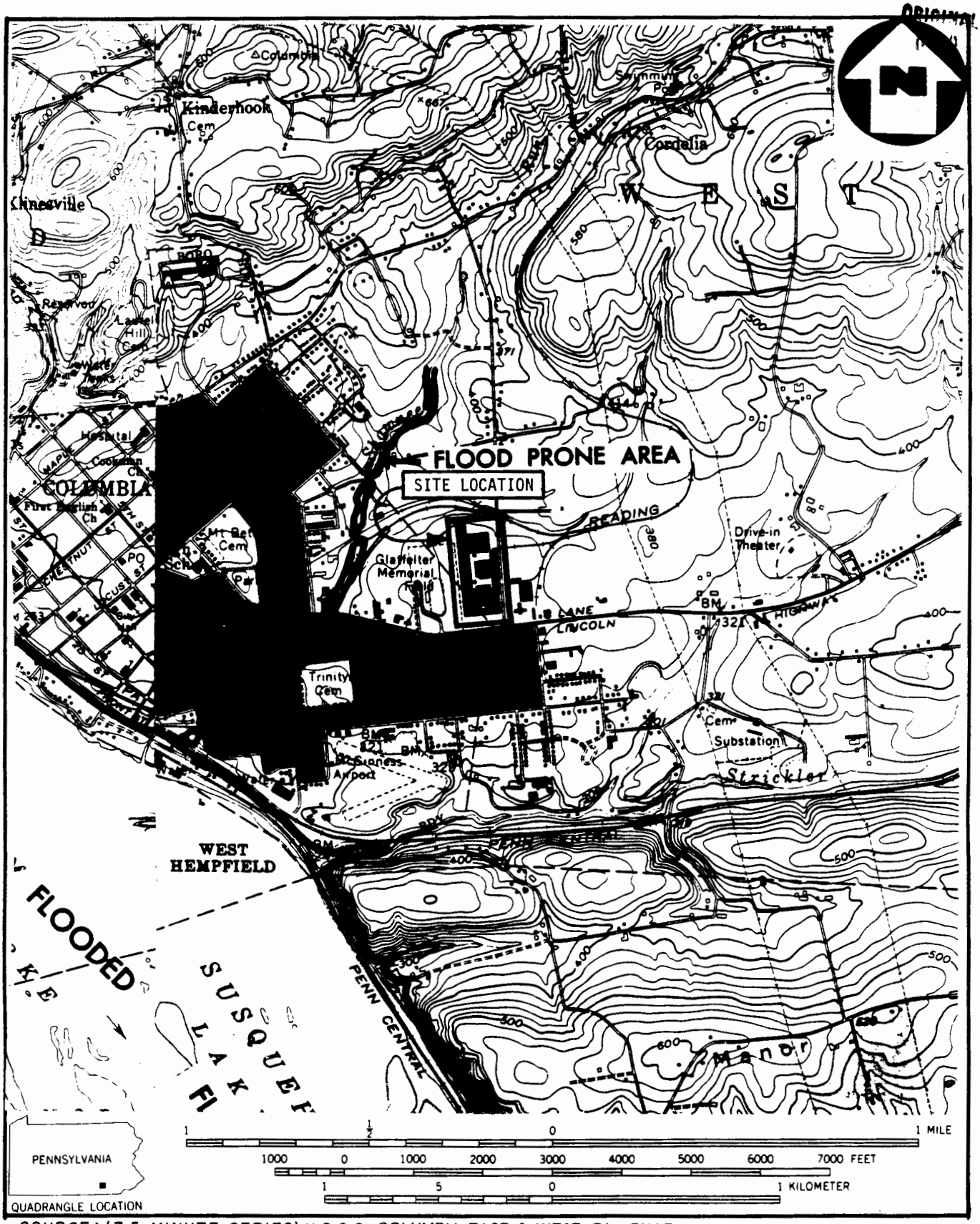
The ITT Grinnell site is an active manufacturer of malleable and ductile iron fittings and jobwork. The site is located on a 62-acre parcel of land in Columbia, Lancaster County, Pennsylvania (see figure 1, page 2). It is bordered by Lincoln Highway to the south, 15th Street to the east, Glatfelter Memorial Field to the west, and an unnamed tributary of Shawnee Run to the north. The site is located just north and east of the town limits of Columbia.

Grinnell Corporation operates a foundry with a galvanizing department. The galvanizing department is located in the southwestern corner of the main plant. Within the galvanizing department are two 2,000-gallon storage tanks for pickle liquor. In addition, there are four acid baths, two rinse baths, and three quench tanks within the galvanizing department.

Any emergency and acidic rinse water is directed to the waste-holding tank. This tank is located in the wastewater treatment plant, located northwest of the main plant. The wastewater treatment plant treats all wastewater from the galvanizing department. Within the treatment plant is a 6,000-gallon tank containing a 50 percent solution of sodium hydroxide (NaOH) and a 1,000-gallon tank containing a 20 percent solution of NaOH. The solutions are used to neutralize the waste acidic solutions generated in the galvanizing department. Emergency overflow of the NaOH storage tanks is also directed to the waste-holding tank. To the north of the main plant are two separator pools used for skimming oil off non-contact cooling water.

Both the treated water from the wastewater treatment plant and water from the separator pools discharge into an active lagoon. The active lagoon, approximately 200 feet long by 25 feet wide by 5 feet deep, is unlined and is located to the north of the wastewater treatment plant and to the west of the two separator pools. In turn, the lagoon discharges its waters into an unnamed tributary of Shawnee Run under NPDES Permit No. PA0080195. Discharge from the lagoon enters the unnamed tributary at the northwestern corner of the property. An unlined inactive lagoon, approximately the same size as the active lagoon, is located adjacent to the active lagoon, to the south. This lagoon is currently covered over and well vegetated.

Access to the site is restricted by a fence that surrounds the site (see figure 2, page 3).



SOURCE: (7.5 MINUTE SERIES) U.S.G.S COLUMBIA EAST & WEST, PA., QUAD

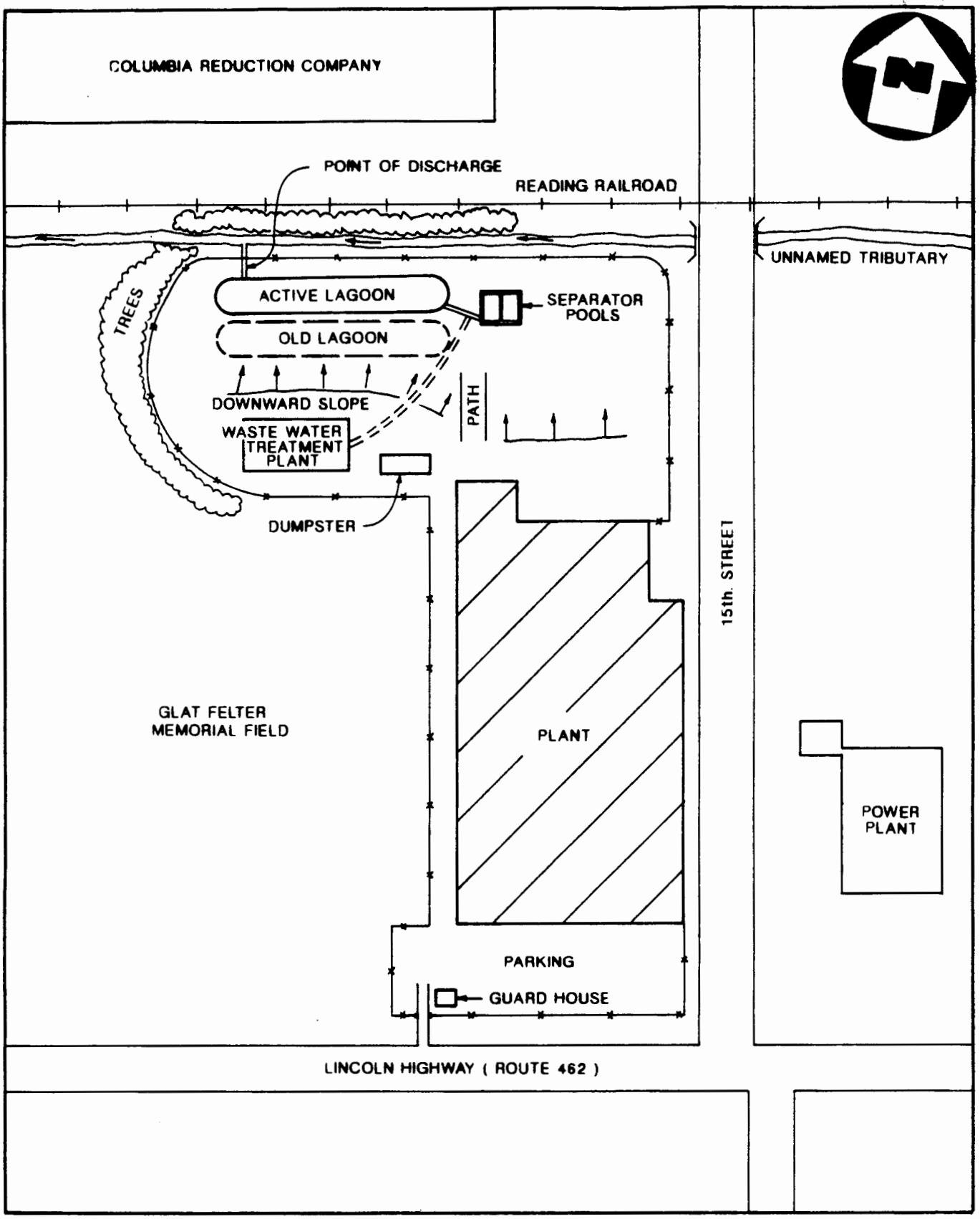
FIGURE 1

SITE LOCATION MAP

ITT GRINNELL, COLUMBIA, PA.

SCALE 1: 24000

NUS CORPORATION



SITE SKETCH

ITT GRINNELL, COLUMBIA, PA.

(NO SCALE)

FIGURE 2

NUS CORPORATION

ORIGINAL

The site is currently owned and operated by Grinnell Corporation, a subsidiary of Tyco Labs. The company manufactures malleable and ductile iron fittings and jobwork. The company purchases scrap steel and utilizes electric induction melting techniques to liquidize the iron. The liquid metal is then poured into "green sand" molds. The molds are cooled and the sand is separated off and recycled. Next, the castings are shot cleaned to remove any sand and are polished. Most products are then annealed before they are sent to either a galvanizing department and/or to a machine shop to be threaded and assembled.

Wastes produced from the foundry and galvanizing operation include baghouse dust, furnace slag, unusable sand cores, spent foundry sands, solid sludge from galvanizing, and spent pickle liquor. The baghouse dust, furnace slag, and spent foundry sands are transported off site to the Lancaster Area Refuse Authority Landfill in Lancaster, Pennsylvania. Core wastes are transported off site to S.S. Fisher Corporation in Lancaster, Pennsylvania. Galvanizing sludge is placed into a dumpster outside the wastewater treatment and is transported off site to Envirite Corporation in York, Pennsylvania. Spent pickle liquor and acid rinse water are neutralized in the wastewater treatment plant before its discharge into the active lagoon and eventually into an unnamed tributary of Shawnee Run. Grinnell Corporation currently holds RCRA generator status (no. PAD09626649) for the generation of galvanizing sludge. In addition, Grinnell Corporation holds an air quality control permit (no. 36-304-034A) for the castings, molding, and sand-handling air systems.

Grinnell Corporation began its operations on site after the purchase of the site property from ITT Grinnell Corporation on February 2, 1986. ITT Grinnell Corporation owned and operated a foundry and galvanizing department, similar to Grinnell Corporation's, on site from approximately 1968 until February 2, 1986. ITT Grinnell Corporation produced the same types of wastes as Grinnell Corporation; however, the exact quantities are unknown. During the later years of operation, ITT Grinnell Corporation disposed of its wastes in the same manner as Grinnell Corporation. However, earlier waste-handling practices are not known. At some time during its ownership, ITT Grinnell Corporation allegedly discharged acidic rinse waters and spent pickle liquors directly into the inactive lagoon, without a permitted treatment plan. Prior to 1968, the site was owned and operated under another company, also named Grinnell Corporation. Grinnell Corporation operated a foundry on site from the late 1920s until approximately 1968. Waste types are believed to be similar to that produced by the foundry of the current Grinnell Corporation; however, the quantities and waste-handling practices are unknown.

ORIGINAL (Red)

Sampling to Date

The galvanizing plant sludge was analyzed on February 2, 1982 for pH, phenolics, oil, and several inorganic metals including arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, and zinc. Analysis of sludge samples revealed that the galvanizing sludge did not exceed EP toxicity limits. Analyses were performed by the Lancaster Laboratories of Lancaster, Pennsylvania (see attachment 2).

Outfall from the active lagoon prior to its discharge into the unnamed tributary of Shawnee Run is tested weekly, as required by the NPDES permit. Water samples are tested for total zinc, oil and grease, total suspended solids, total cadmium, total chromium, total copper, total lead, total nickel, total silver, total cyanide, total toxic organics, and pH.

Drinking Water Supply

Residents within the town limits of Columbia and a few outlying areas receive their drinking water supply from the Columbia Water Company. A population of 18,825 persons is supplied by the system. The Columbia Water Company receives its water source from an intake on the Susquehanna River, approximately 1/2 mile upstream from the confluence of Shawnee Run and the Susquehanna River.

Some other residents living within a three-mile radius of the site receive their drinking water supply from either the Mountsville Municipal Water Company or the Marietta Gravity Water Company. The Mountsville Municipal Water Company services approximately 2,329 persons and receives its water source from Grubb Lake, located approximately 3 miles northeast of the site. The Marietta Gravity Water Company services approximately 3,093 persons and receives its water source from Dugan and Wildcat Reservoirs and 3 wells, all located approximately 5 miles west-northwest of the site in York County.

Residents outside the distribution limits of the public supply system maintain private wells. During the FIT 3 home well survey, four home wells and one spring was identified within a 1/4-mile radius of the site. The nearest private domestic groundwater source is a spring located approximately 1,100 feet northwest of the site. Approximately 4,435 residents within a 3-mile radius of the site rely on groundwater for their drinking water supply.

ORIGINAL (Red)

Geology Information

The ITT Grinnell site is located in the Conestoga Valley Section of the Piedmont Physiographic Province. The Conestoga Valley is underlain by Cambrian and Ordovician age carbonate rocks and shale and by minor amounts of quartzite, phyllite, and schist. Structurally, the area is very complex, with the formations exhibiting extensive folding and faulting. The land surface is gently rolling.[1]

The site is underlain by the Ordovician-Cambrian age Conestoga Formation, which consists of gray, finely to coarsely crystalline limestone that commonly contains clayey, graphitic, and micaceous laminae. A basal conglomerate contains rounded carbonate fragments ranging in size from pebbles to boulders five feet in diameter. Thickness is in excess of 1,000 feet.[1]

The soils mapped at the site are the Conestoga silt loam, zero to three percent slopes, and the Wheeling silt loam, zero to three percent slopes. Both soils are deep and well drained. The Conestoga silt loam is dark brown to yellowish-brown and very friable. Runoff is slow. Depth to bedrock is generally about 72 inches. The Wheeling silt loam is dark grayish-brown with a few rounded pebbles throughout the profile. The moisture holding capacity is high, and internal drainage is moderate. Runoff is slow.[2]

Groundwater Information

Groundwater movement in the carbonate bedrock is predominantly through fractures and bedding plane separations that have been enlarged through solutioning. Wells in the Conestoga range in depth from 38 to 502 feet, with a median depth of 105 feet. Well yields range from 20 to 250 gallons per minute (gpm). Specific capacities range from 0.02 to 130 gpm per foot of drawdown with a median of 2.2 gpm per foot of drawdown.[1]

The direction of shallow groundwater flow at the site is expected to be northwest toward a tributary of Shawnee Run.[1]

ORIGINAL (Red)

Site Observations

- The HNU background reading was 0.1 ppm; no readings above background were recorded.
- The mini-alert setting was on the X1 position; no readings above background were recorded.
- The site is approximately 62 acres in size.
- There was an active lagoon located in the northwestern portion of the property.
- Water from the active lagoon discharged directly into an unnamed tributary of Shawnee Run at the northwestern corner of the site property.
- Site surface drainage was to the north into the unnamed tributary of Shawnee Run.
- There were no monitoring wells or production wells present at the site.
- A covered and well vegetated area where a previous lagoon existed was observed adjacent to the active lagoon.
- There were no leachate seeps observed on site.
- There was a steep slope running from a level area where the main plant and wastewater treatment plant are located toward a level area where the active lagoon and separator pools are located.
- The Reading Railroad was observed just north of the unnamed tributary of Shawnee Run.
- The Glatfelter Memorial Field is located to the west of the site. Residences are located to east and south of the site.

ORIGINAL
(Red)

ATTACHMENT 1

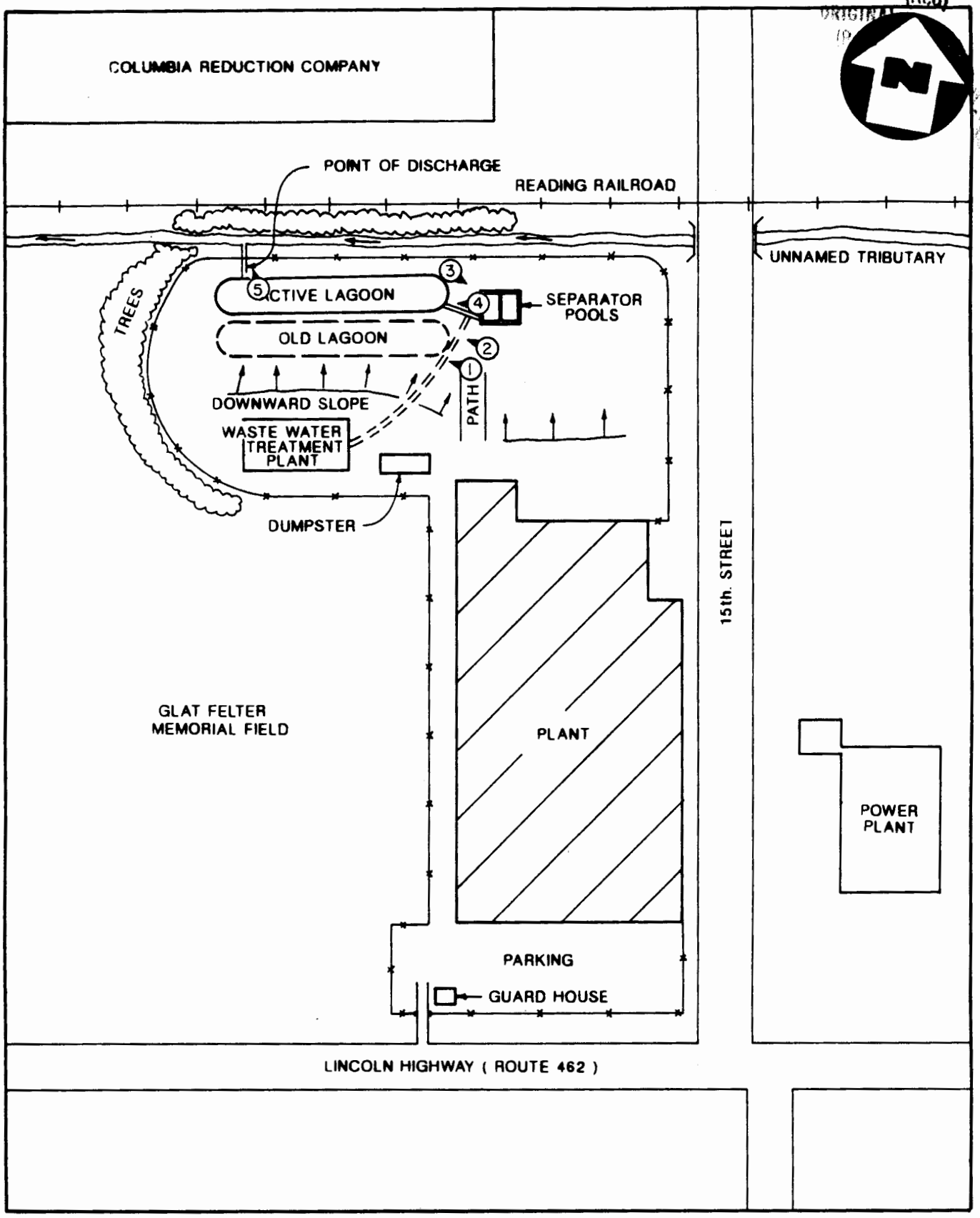


PHOTO LOCATION MAP

ITT GRINNELL, COLUMBIA, PA.

(NO SCALE)

FIGURE

NUS CORPORATION

ORIGINAL
(Red)

ATTACHMENT 2

Grinnell
CORPORATION

ORIGINAL
(Red)

MANUFACTURING DIVISION

1411 Lancaster Avenue
Columbia, PA 17512
Telephone: (717) 684-4400
Telex: 848455

October 2, 1986

S. S. Fisher Landfill
R. D. #6
Box 156A
Lancaster, PA 17603

Attention: Mr. Steve Fisher, Sr.

Gentlemen:

Per our meeting of last June, please find enclosed five (5) copies of the Module One for our core scrap. Please have your engineer review and complete these modules.

If there are any questions, please contact me.

Sincerely,

GRINNELL CORPORATION

Michael R. Millhouse
Senior Plant Engineer

MRM/as
Encl.

cc: G. P. Devery
File

ORIGINAL
(Red)

ER-SWM-14: Rev. 4/81

DATE PREPARED
DATE REVISED

PA DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF SOLID WASTE MANAGEMENT
MODULE 1

DEPARTMENT USE ONLY

REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A HAZARDOUS OR RESIDUAL WASTE STREAM

SEE INSTRUCTIONS BEFORE COMPLETING THIS FORM

GENERAL INFORMATION (must be completed by TSD facility)

A. Treatment, Storage, or Disposal Site

1. Name of facility _____

   Address _____

   Municipality _____ County _____

2. Identification number (if applicable) ☐☐☐☐☐☐☐☐☐☐☐☐

3. Solid waste permit number(s) for treatment, storage or disposal facility to be utilized

   _____ _____

4. Facility contact person

   Name _____ Title _____

   Phone no. _____

B. Generator of the Waste

1. Name of company Grinnell Corporation

   Mailing address 1411 Lancaster Avenue, Columbia, PA 17512

   Location of site if different from mailing address Same

   Municipality Columbia County Lancaster

2. If a subsidiary, name of parent co. TYCO Laboratories, Inc.

3. Identification number (if applicable) P A D 0 9 6 2 6 6 4 9 9

4. Company contact person

   Name G. P. Devery title Plant Engineer

   Phone no. 717/684-4400

ORIGINAL (Red)

MODULE 1, PAGE 2

DATE PREPARED
DATE REVISED

DEPARTMENT USE ONLY

I. WASTE DESCRIPTION (Must be completed by Generator)

A. -General Properties

1. pH range 5 to 8 (based on past analyses or knowledge)

2. Physical state:

a. ☐ liquid (less than 20% solids by dry wt. or flowable)

b. ☐ gas (ambient temperature and pressure)

c. ☒ solid (equal to or greater than 20% by dry wt. and non-flowable)

d. ☐ Check here if c. above was checked and waste contains free liquids.

3. Physical appearance:

Color Yellow/Brown Odor Foundry

Number of solid or liquid phases of separation 1

Describe each phase of separation

4. U.S. DOT proper shipping name UN/NA number, and hazard class (if applicable):

N/A

5. Typical volume of waste to be shipped to treatment storage or disposal facility:

a. Monthly 75 gal (tons) (circle one)

b. Annually 3750 gal. (tons) (circle one)

6. Treatment or disposal frequency: 240 times per year; ☐ one time

7. Current volume to be shipped to treatment storage or disposal facility 18 gal. (tons) (circle one)

8. a. Is the waste a hazardous waste as defined in 75.261? ☐ Yes ☒ No

b. If yes, describe the hazardous waste according to its description and hazardous waste number in 75.261.

9. Has the waste been delisted as a hazardous waste by DER? ☐ Yes ☐ No ☒ N/A
If yes or N/A, check the appropriate box(es) in Item 10.

DATE PREPARED
DATE REVISED

DEPARTMENT USE ONLY

10. Is the waste a residual waste or a delisted hazardous waste? ☒ Yes ☐ No
If yes, check the following box(es) as applicable:

- ☐ discarded commercial chemical product
- ☐ tank bottom
- ☐ off-specification species
- ☐ manufacturing chemical intermediate
- ☐ still bottom
- ☐ spent catalyst
- ☐ flyash
- ☐ bottom ash
- ☐ slag
- ☐ foundry sand
- ☐ SO_2 scrubber sludge
- ☒ process waste
- ☐ infectious waste
- ☐ baghouse dust
- ☐ wastewater treatment plan residue (industrial)
- ☐ wastewater treatment plant residue (sewage)
- ☒ water treatment plant residue
- ☐ incinerator residue
- ☐ acid mine drainage treatment sludge
- ☐ spill residue
- ☐ other (specify) _____

B. Chemical Analyses — *Please attach the following:*

1. The results of the total analysis of the waste as described in the instructions. *
   See Attachment #1
2. The results of the leaching tests as described in the instructions and the leaching method. *
   See Attachment #2
3. A description of the sampling method.
   Field samples from two coremaking processes, blended and split for analysis.
4. The range of concentrations of the constituents based on knowledge or past analyses.
   Constituents do not change due to stability of the process.

C. Process Description and Schematic — *Please attach the following:*

1. The substantiation for a confidentiality claim as described in the instructions, if portions of the information you have submitted are confidential.
2. A detailed description of the manufacturing and/or pollution control processes producing the hazardous or residual waste as specified in the instructions.
   See Attachment #3
3. A schematic of the manufacturing and/or pollution control processes producing the hazardous or residual waste as specified in the instructions.
   See Attachment #4

III. Liner Compatibility Evaluation (must be completed by TSD facility)

Attach the results of the liner compatibility evaluation or supporting data as specified in the instructions.

*The following were omitted as they are not applicable to core sand waste:

B.2	COD	TDS	B.1	BTU
	CR6	TOL		SBDWS
	NH3	TOX		
	SB	TVS		

DATE PREPARED
DATE REVISED

ORIGINAL (Red)
DEPARTMENT USE ONLY

IV. PROPOSED TREATMENT, STORAGE, AND/OR DISPOSAL METHOD (must be completed by TSD facility. Use additional sheets if necessary.)

A. Proposed Treatment Method

B. Proposed Storage Method and Length of Storage

C. Proposed Disposal Method

V. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD (must be completed by generator. Use additional sheets if necessary.)

A. What Other Treatment, Disposal, Recycle, Reuse, or Reclamation Method(s) Can be Used? Briefly describe viable alternatives to your proposal.

B. Why was the Treatment and/or Disposal Method in Section IV Chosen?

DATE PREPARED

DATE REVISED

FOR DEPARTMENT USE ONLY

VI. CERTIFICATION OF GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name of Responsible Official D. L. Chartrau Title General Manager

Signature _____ Date 8/30/86

Taken, sworn and subscribed before me, this

_____ day of _____ A.D. 19__

NOTARY SEAL

V. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR TREATMENT STORAGE AND/OR DISPOSAL FACILITY

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications, and other documents which are part of this application and that I have found it to be of good engineering quality, true and correct, and is in conformance with the requirements of the Department of Environmental Resources, and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department.

NOTICE: It is an offense under Pennsylvania Crimes Code to affirm a false statement in documents submitted to the Department.

Name _____

Signature _____

Date _____

Address _____

_____

Phone No. _____

SEAL OF PA REGISTERED PROFESSIONAL ENGINEER

ANALYTICAL LABORATORIES
A DIVISION OF SKELLY AND LOY
2601 North Front Street Harrisburg, PA 17110 (717) 232-0593

ORIGINAL
(Red)

ATTACHMENT #1

LABORATORY ANALYSIS REPORT

NAME: ITT GRINNELL CORP.
ADDRESS: 1411 LANCASTER AVE.
COLUMBIA, PA 17512

PROJECT NO: 5213
CLIENT NO: 467
SAMPLE NO: 25195

TENTION: MIKE MILLHOUSE
REF. NO: PO# COL10990

DATE RECVD: 1/ 7/86

THU, JAN 30 1986

E PLE IDENTIFICATION: COMPOSITE CORE SAMPLE DATE:

-TEST-	--------DETERMINATION---------	--RESULTS---	---UNITS---
------	MOD. 1-TOTAL ANALYSIS OF SOLID	------	
AGDWS	SILVER, DRY WEIGHT	.40	MG/KG
ASDWS	ARSENIC, DRY WEIGHT	.550	MG/KG
BADWS	BARIUM, DRY WEIGHT	4.0	MG/KG
BTU	HEATING VALUE (DRY WEIGHT)	OMIT	BTU/LB
CDDWS	CADMIUM, DRY WEIGHT	1.20	MG/KG
CNTS	CYANIDE, TOTAL (DRY WEIGHT)	<.5	MG/KG
CRDWS	CHROMIUM, DRY WEIGHT	3.00	MG/KG
CUDWS	COPPER, DRY WEIGHT	.80	MG/KG
HGDWS	MERCURY, DRY WEIGHT	<.010	MG/KG
MODWS	MOLYBDENUM, DRY WEIGHT	<.60	MG/KG
NIDWS	NICKEL, DRY WEIGHT	2.00	MG/KG
OGSOX	OIL AND GREASE BY SOXHLET EXT.	344	PPM
PBDWS	LEAD, DRY WEIGHT	1.80	MG/KG
PPH	PASTE PH	5.06	
SBDWS	ANTIMONY, DRY WEIGHT	OMIT	MG/KG
SEDWS	SELENIUM, DRY WEIGHT	.180	MG/KG
TRP	TOTAL RESIDUE	99.87	%
TVRP	TOTAL VOLATILE RESIDUE	2.10	%
ZNDWS	ZINC, DRY WEIGHT	2.00	MG/KG
FRP	FIXED RESIDUE	97.90	%
PHENDW	PHENOL, DRY WEIGHT BASIS	355	MG/KG

ANALYTICAL LABORATORIES
A DIVISION OF SKELLY AND LOY
2601 North Front Street Harrisburg, PA 17110 (717) 232-0593

ORIGINAL (Red)

ATTACHMENT #2

LABORATORY ANALYSIS REPORT

NAME: ITT GRINNELL CORP.
ADDRESS: 1411 LANCASTER AVE.
COLUMBIA, PA 17512

PROJECT NO: 5213
CLIENT NO: 467
SAMPLE NO: 25196

TTENTION: MIKE MILLHOUSE
REF. NO: PO# COL10990

DATE RECVD: 1/ 7/86

MON, FEB 17 1986

AMPLE IDENTIFICATION: EP TOX LEACHATE-CORE COMPOSITE DATE:

-TEST-	--------DETERMINATION---------	--RESULTS---	--UNITS---
------	DER MODULE 1-LEACHATE ANALYSIS	------	
AG	SILVER, TOTAL	<.01	MG/L
AS	ARSENIC, TOTAL	<.005	MG/L
BA	BARIUM, TOTAL	.1	MG/L
CD	CADMIUM, TOTAL	.05	MG/L
CNT	CYANIDE, TOTAL	<.005	MG/L
COD	CHEMICAL OXYGEN DEMAND	OMIT	MG/L
CR	CHROMIUM, TOTAL	<.01	MG/L
CR6	CHROMIUM, HEXAVALENT	OMIT	MG/L
CU	COPPER, TOTAL	<.01	MG/L
HG	MERCURY, TOTAL	<.0005	MG/L
MO	MOLYBDENUM, TOTAL	<.03	MG/L
NH3	AMMONIA NITROGEN	OMIT	MG/L
NI	NICKEL, TOTAL	<.03	MG/L
OG	OIL AND GREASE	.4	MG/L
PB	LEAD, TOTAL	<.03	MG/L
PH	PH, LAB	5.19	PH UNITS
PHEN	PHENOL, DISTILLED	13.2	MG/L
SB	ANTIMONY, TOTAL	OMIT	MG/L
SE	SELENIUM, TOTAL	<.005	MG/L
TDS	TOTAL DISSOLVED SOLIDS	OMIT	MG/L
TOC	TOTAL ORGANIC CARBON	OMIT	MG/L
TOX	TOTAL ORGANIC HALOGEN	OMIT	MG/L
TVS	TOTAL VOLATILE SOLIDS	OMIT	MG/L
ZN	ZINC, TOTAL	.02	MG/L

ANALYTICAL LABORATORIES

A DIVISION OF SKELLY AND LOY
2601 North Front Street Harrisburg, PA 17110 (717) 232-0593

ORIGINAL
(Red)

ATTACHMENT #2A

LABORATORY ANALYSIS REPORT

NAME: ITT GRINNELL CORP.
ADDRESS: 1411 LANCASTER AVE.
COLUMBIA, PA 17512

ATTENTION: MR. TERRY WITTENBERG
REF. NO: P.O. #16766

PROJECT NO: 5531
CLIENT NO: 467
SAMPLE NO: 26233

DATE RECVD: 3/10/86

WED, MAR 26 1986

SAMPLE IDENTIFICATION: CORE SAMPLE COMPOSITE DATE: 3/ 4/86

-TEST-	--------DETERMINATION---------	--RESULTS---	--UNITS---
PHEN	PHENOL, DISTILLED	.52	MG/L

COMMENTS: THIS ANALYSIS WAS PERFORMED ON THE EP-TOXICITY LEACHATE.

ATTACHMENT #3

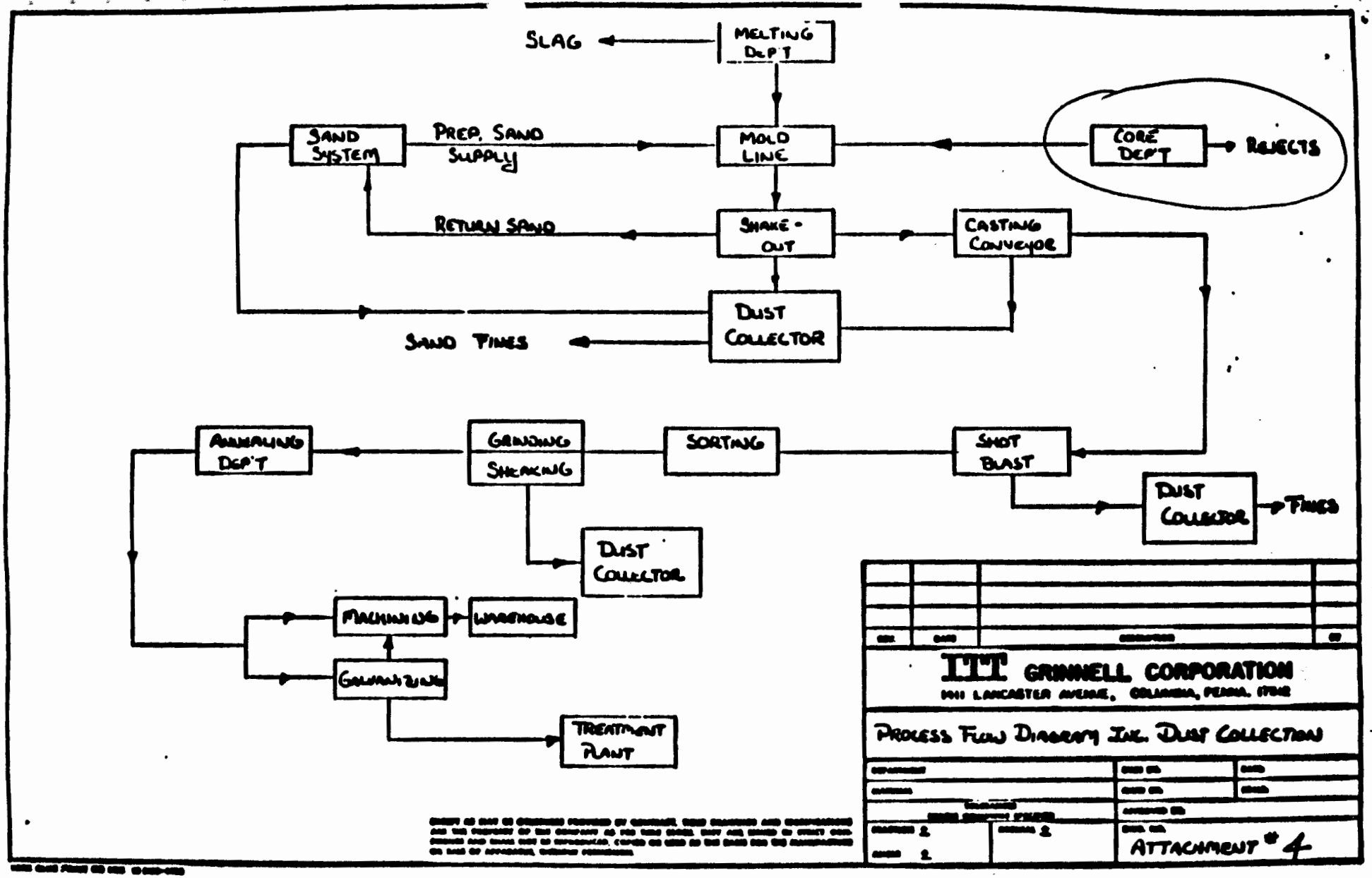
ORIGINAL (Red)

MALLEABLE CAST IRON FITTINGS

Grinnell - Columbia Plant is a manufacturer of malleable and ductile iron fittings and jobwork. This is a foundering process utilizing electric induction melting techniques to liquidize iron. The 2800^{o} F metal is poured into "green sand" molds. The molds are cooled, sand and product are separated. The sand is recycled. The castings are further processed through shot cleaning machines to remove "skin sand" and "core sand" that were not removed at the "shakeout". Product is sorted and polished at either a "shear press" or a "grinder". Most product is then annealed to transform the iron to a "malleable" (soft) state. Ductile iron does not require annealing. The product is sent to either a galvanizing department for "hot dip" galvanized coating and/or to the machine shop to be threaded and assembled. Finally the product is cartoned and placed in a warehouse.

Processes generating wastes are:

1. Melting - Slag (impurities separated from metal) skimmed at the furnaces.
2. Molding - Dust collectors capturing fine sand and iron fumes at various areas of the molding system including:
   a. Shakeout.
   b. Sand reclamation.
   c. Casting conveying.
3. Shot Blast Machine - Dust collection at machines capture sand blasted off "skin" of product.
4. Core Department - Unusable sand cores waste sand are thrown out.
5. Galvanizing - Solids and metals that are washed out of the department during the galvanizing process are precipitated out at the Galvanzing Waste Treatment Plant, run through a sludge press and sent (at present) to a landfill site.



ORIGINAL
(Red)